

UNIVERSITÉ DE SHERBROOKE

***Journalisation dans un Programme de carrière
en nouveaux médias :
Le rôle de la réflexion par l'action***

**Journaling in a NewMedia Career Program:
The Role of Reflection on Action**

par
Joanne Cypihot Mullaly
Essai présenté à la Faculté d'éducation
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SUMMARY

The purpose of this case study is to report on the use of learning journals as a strategy to encourage critical reflection in the field of graphic design. Very little empirical research has been published regarding the use of critical reflection in learning journals in this field. Furthermore, nothing has been documented at the college level. To that end, the goal of this research endeavor was to investigate whether second-year students in the NewMedia and Publication Design Program at a small Anglophone CEGEP in Québec, enrolled in a Page Layout and Design course, learn more deeply by reflecting *in* action during design projects or reflecting *on* action after completing design projects. Secondly, indications of a possible change in self-efficacy were examined.

Two hypotheses were posited: 1) reflection-on-action journaling will promote a deeper approach to learning than reflection-in-action journaling, and 2) the level of self-efficacy in graphic design improves as students are encouraged to think reflectively. Using both qualitative and quantitative methods, a mixed methods approach was used to collect and analyze the data. Content analysis of journal entries and interview responses was the primary method used to address the first hypothesis. Students were required to journal twice for each of three projects, once during the project and again one week after the project had been submitted. In addition, data regarding the students' perception of journaling was obtained through administering a survey and conducting interviews. For the second hypothesis, quantitative methods were used through the use of two surveys, one administered early in the Fall 2011 semester and the second administered early in the Winter 2012 semester. Supplementary data regarding self-efficacy was obtained in the form of content analysis of journal entries and interviews. Coded journal entries firmly supported the hypothesis that reflection-*on*-action journaling promotes deep learning. Using a taxonomy developed by Kember et al. (1999) wherein "critical reflection" is considered the highest level of reflection, it was found that only 5% of the coded

responses in the reflection-*in*-action journals were deemed of the highest level, whereas 39% were considered *critical reflection* in the reflection-*on*-action journals.

The findings from the interviews suggest that students had some initial concerns about the value of journaling, but these concerns were later dismissed as students learned that journaling was a valuable tool that helped them reflect and learn. All participants indicated that journaling changed their learning processes as they thought much more about what they were doing while they were doing it. They were taking the learning they had acquired and thinking about how they would apply it to new projects; this is *critical reflection*.

The survey findings did not support the conclusive results of the comparison of journal instruments, where an increase of 35% in critical reflection was noted in the reflection-*on*-action journals. In Chapter 5, reasons for this incongruence are explored. Furthermore, based on the journals, surveys, and interviews, there is not enough evidence at this time to support the hypothesis that self-efficacy improves when students are encouraged to think reflectively. It could be hypothesized, however, that one's self-efficacy does not change in such a short period of time.

In conclusion, the findings established in this case study make a practical contribution to the literature concerning the promotion of deep learning in the field of graphic design, as this researcher's hypothesis was supported that reflection-*on*-action journaling promoted deeper learning than reflection-*in*-action journaling. When examining the increases in critical reflection from reflection-*in*-action to the reflection-*on*-action journals, it was found that all students but one showed an increase in *critical reflection* in reflection-*on*-action journals. It is therefore recommended that production-oriented program instructors consider integrating reflection-*on*-action journaling into their courses where projects are given.

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RÉSUMÉ (FRENCH ABSTRACT)

Le but de cette étude de cas est de rapporter sur l'utilisation des journaux d'apprentissage comme stratégie pour encourager la réflexion critique dans le champ de l'infographie. Peu de recherche empirique a été publiée en ce qui a trait à la réflexion critique dans les journaux d'apprentissage dans ce domaine. En outre, il n'y a rien qui a été recensé au niveau collégial. À cette fin, l'objectif de cette tentative de recherche était de mener une enquête à savoir si les étudiants de deuxième année au Programme de *NewMedia and Publication Design* dans un petit cégep anglophone au Québec, inscrits à un cours de disposition typographique et conception, avaient appris davantage en *réfléchissant en action* lors de la conception de projets ou en *réfléchissant de l'action* après avoir complété la conception de projets. En second lieu, les indications d'un changement possible en auto-efficacité ont été examinées.

Deux hypothèses ont été avancées: 1) la journalisation par la réflexion de l'action promet davantage une approche approfondie à l'apprentissage que la journalisation par la réflexion en action, et 2) le niveau d'auto-efficacité en infographie s'améliore considérant que les étudiants sont encouragés à penser avec réflexion. Utilisant, à la fois, des méthodes qualitative et quantitative, une approche de méthodes mixtes a été utilisée pour récolter et analyser les données. Le contenu d'analyse des entrées de journal et les réponses aux entrevues étaient la méthode principale utilisée pour répondre à la première hypothèse. Les étudiants étaient tenus de faire des entrées de journal deux fois pour chacun des trois projets, une fois au cours du projet et une semaine suivant la remise du projet. En plus, les données concernant la perception des étudiants en ce qui a trait à la journalisation a été obtenue en administrant un sondage et en ayant des entrevues. Pour la deuxième hypothèse, des méthodes quantitatives ont été utilisées par le biais de deux sondages, un a été administré tôt dans le semestre de l'automne 2011 et le second a été administré tôt dans le semestre de l'hiver 2012. Des données supplémentaires concernant l'auto-efficacité ont été obtenues sous la forme de contenu d'analyse des entrées de journal et d'entrevues.

Des entrées de journal codées ont appuyé solidement l'hypothèse que la journalisation par la réflexion *de l'action* promet un apprentissage en profondeur. Utilisant une taxonomie développée par Kember et al. (1999) où la « réflexion critique » est considérée comme étant le niveau le plus élevé de la réflexion, on a trouvé que seulement 5 % des réponses codées dans les journaux de type réflexion *en action* ont été considérées au niveau le plus élevé, tandis que 39 % ont été considérées de la *réflexion critique* dans les journaux de type réflexion *de l'action*.

Les conclusions des entrevues suggèrent que les étudiants avaient des préoccupations au préalable sur la valeur de la journalisation, cependant ces inquiétudes ont été dissipées quand les étudiants ont appris que la journalisation est

un outil précieux qui les a aidés à réfléchir et apprendre. Tous les participants ont indiqué que la journalisation a changé leurs processus d'apprentissage comme ils pensaient davantage à ce qu'ils faisaient en le faisant. Ils prenaient l'apprentissage qu'ils avaient acquis et pensaient comment ils pouvaient le mettre en application dans les nouveaux projets; ceci est de la *réflexion critique*.

Les constatations du sondage n'ont pas appuyé les résultats concluants de la comparaison des outils de journal, où une augmentation de 35 % de la réflexion critique a été notée dans les journaux de la réflexion *de* l'action. Au chapitre 5, les raisons pour cette incongruité sont étudiées à fond. En outre, en se basant sur les journaux, les sondages et les entrevues, il n'y a pas suffisamment de preuve en ce moment pour appuyer l'hypothèse que l'auto-efficacité s'améliore quand les étudiants sont encouragés à penser avec réflexion. On pourrait présumer, toutefois, que son auto-efficacité ne change pas en un si court laps de temps.

En conclusion, les constatations établies dans cette étude de cas font une contribution pratique à la littérature visant la promotion de l'apprentissage en profondeur dans le champ de l'infographie, telle que l'hypothèse de cette chercheuse a été appuyée par la journalisation de la réflexion *de* l'action. Quand on examine l'augmentation de la réflexion critique des journaux de la réflexion *en* action aux journaux de la réflexion *de* l'action, on a remarqué que tous les étudiants à part un avaient démontré une augmentation dans la réflexion critique dans les journaux de réflexion *de* l'action. Il est donc recommandé que des instructeurs de programme orienté vers la production considèrent intégrer la journalisation par la réflexion *de* l'action à leurs cours où des projets sont remis.

NOTA : Pour ne pas alourdir le texte français, le masculin est utilisé.

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INTRODUCTION

There has been considerable concern in many CEGEPs that career-sector students are not learning deeply, nor are they applying critical reflection to the practice of their soon-to-be-professions. Critical reflection is considered the highest level of reflection (Dewey, 1938; Mezirow, 1991, Kember et al., 2008) whereby students reflect on the project, critically comment on what has happened during the project, and then use the new learning to improve future projects. Deep learning requires the critical analysis of new ideas and the linking of them to already-known notions and principles (Martin & Saljo, 1976; Biggs, 1999; Ramsden, 2003). This linking leads to new understanding and long-term retention of concepts so that they can be used in novel contexts.

Of particular interest to this researcher is the students' learning experience in the NewMedia and Publication Design Program at a small English-language CEGEP in western Québec. This three-year career program (categorized as a 412 discipline by the Québec Ministry of Education) is known by different names across the province. In this program, all major projects are given with a view that students will build on the software skills and design knowledge they already have and will acquire new insight into both of these skill sets through each new project, thus helping them in the next project; this requires deep learning through critical reflection. It is also hoped that students will gain awareness into how they construct their own learning.

As the program is production oriented, students are completing multiple projects in several courses concurrently. It is the goal of the NewMedia program that students learn to reflect on their own work, learn through reflecting on their own work, and apply this new learning to new graphic design projects. This researcher introduced journaling as a means for deep reflection in the fall of 2007, and has noted anecdotally growth in students' level of reflection and self-efficacy. The goal of this case study is to gather empirical data on the level of reflections exhibited in journals. Secondly, indications of a possible change in self-efficacy will be examined.

CHAPTER ONE: STATEMENT OF PURPOSE

Various authors have discussed reflection in terms of it being an intellectual activity (Dewey, 1916; Habermas, 1974; Schon, 1983; Boud, Keogh, & Walker, 1985; Boud & Knights, 1994; Mezirow (1991). Students who engage in reflection explore their experiences in order to lead to understandings of what they have learned and their own learning processes. This process enables students to be more self-aware, and thus enables deeper learning. This is called metacognition; it is knowing about knowing or cognition about cognition (Flavell, 1976). It is the awareness individuals have about their own mental processes, and the ability to monitor and control or regulate their own learning (Flavell, 1976; Brown, 1980). Flavell (1976) further defines metacognition as follows:

Metacognition refers to one's knowledge concerning one's own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact (p. 232).

The purpose of this research is to learn more about how to promote deep learning, rather than surface learning, in the NewMedia and Publication Design program at a small English-language Cégep. Deep learning promotes understanding and application for the long term, whereas surface learning does not. Surface learning is the acceptance of information and memory work, with little or no search for meaning or linking to previous knowledge. It leads to superficial retention of material and does not promote understanding or long-term retention of knowledge and information (Martin & Saljo, 1976; Biggs, 1999; Ramsden, 2003).

The most important goal of this case study was to discover a means by which deep learning could be facilitated in the courses this researcher teaches, so that

students will know *that* they are learning and *what* they are learning, both as designers and as learners, so that they might apply this learning to new projects.

Donald Schon (1983) developed the distinction between “reflection in action” (RIA) and “reflection on action” (ROA). Reflection in action is the thinking that transpires while working on a project. Reflection on action takes place after the project has been completed. Boud et al (1985) described this type of reflection as the *processing phase*. It is believed that “reflection on action”—that is, reflecting after a project has been completed— will enable students to use metacognition; this, in turn, will facilitate deeper learning.

By completing projects, students learn about the software, hardware, and design principles. However, they often are not aware to what extent that learning has taken place, or that they have acquired a deeper understanding of their profession. Only by reflecting on the process (reflection on action), do they learn from their experiences (Dewey, 1938, Schon, 1983). Students are not only asked to reflect on their experiences with the software, hardware and design; they are also asked to reflect on how they, themselves learn. This kind of reflection promotes metacognition.

It is also thought that students who learn to reflect on action using metacognition will increase their self-efficacy as designers which, in turn, will lead to more confidence when students consider co-op placements. Students often lack confidence in their abilities, and it is believed that this deep reflection will assist in this area as well.

In this study the use of journal writing as a means of promoting deep learning through reflection was explored. If the research shows that journal writing supports deep learning, the implications could be significant. This is true not only for the NewMedia and Publication Design program in particular, but for all career programs that are production-driven, not only in the CEGEP system, but in all career programs in general.

CHAPTER TWO: CONCEPTUAL FRAMEWORK

1. CONSTRUCTIVISM: REFLECTION AS AN INTELLECTUAL ACTIVITY

The constructivist view of learning dates back as far back as Dewey (1938), and its premise is that there is no knowledge independent of the meaning given to it by the experience of the learner. Boud (2001) believed that “learning is always grounded in prior experience and that any attempt to promote new learning must take into account that experience” (11). We thus construct new knowledge based on prior experiences. Put another way, constructivist principles of active learning include the idea that reflection is the interaction between experience and thought (Dewey, 1938; Piaget, 1955; Schon, 1983).

The critical action of constructing meaning is mental. Physical actions, such as hands-on experiences, may be necessary for learning, but they are not enough. There is a need to provide activities which use the mind in addition to the hands (Vygotsky, 1978). The learner makes meaning or constructs meaning based on his or her framework of experience (Schon, 1983). Dewey (1938) labeled this reflective activity.

Various authors have discussed reflection in terms of it being an intellectual activity (Dewey, 1916; Habernas, 1974; Boud, Keogh, & Walker, 1985; Mezirow, 1991; Boud & Knights, 1994). Reflection appears to be influential in understanding the world. Dewey (1916) wrote that this activity is a deliberate effort to “discover definite connections”. Dewey (1938) later formalized the concept of reflection as an intellectual activity and refined the definition as “active, persistent and careful consideration of any belief or supposed form of knowledge” 9). Dewey referred to the reflective process as “critical inquiry”.

Boud, Keogh and Walker (1985, 19) indicated that reflection involved “intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations”. These authors emphasized that reflection required motivation and open-mindedness; these appear to be prerequisites to reflection that should be encouraged.

Habermas (1974) indicated that reflection occurs under circumstances of purpose; he called this “critical intent.” Boud and Knights (1994) believed that their model of reflection incorporated intent that provides focus to the learning. The authors indicated that there are many reflective strategies that may be adopted but that those chosen must be related to the intent and needs of the learner. According to Mezirow (1991), “reflection is the central dynamic of intentional learning, problem solving, and validity testing through rational discourse” (99).

Kember et al (1999; 2008) developed a taxonomy for assessing the level of reflective thinking. This taxonomy was based on the work of Mezirow (1981; 1991). The new protocol was developed as previous schemes did not seem suitable for assessing written work. The scheme used the following categories: habitual action/non-reflection, understanding, reflection, and critical reflection.

Habitual action or non-reflection arises when students answer questions without trying to understand the concepts or theories that support the subject matter. It is considered a surface approach to learning.

Understanding has been distinguished from habitual action by the learner trying to understand the material. Understanding alone, however, does not imply reflection. Kember et al (2008) wrote that understanding by itself was not related to personal experience and, therefore, may not be able to be personally constructed by the learner. At the understanding level, concepts are learned as theory only and cannot be applied in practice.

Reflection incorporates understanding and takes learning to a more advanced stage whereby it is related to personal experience. Theory is applied to practice. Theory will be understood as it applies to real-life experience.

The highest level of reflection is most often called *critical reflection*. Dewey (1938) differentiated critical reflection from lesser reflection, suggesting the lesser reflection may result from a quick decision arrived at without examining all possibilities. Mezirow (1991) called this stage *perspective reflection*—where learners have undergone a transformation of their perception of a phenomenon. It is unlikely to occur often as it requires the learners to be aware of and to change their assumptions or beliefs.

2. DEEP AND SURFACE LEARNING

According to J. A. Moon (1999) there are different approaches used by students depending on whether or not they are using deep learning or surface learning. The table below illustrates the characteristics of deep and surface learning adapted from Moon (1999, 122).

Table 1 – Characteristics of Deep and Surface Learning

Surface Approaches to Learning	Deep Approaches to Learning
<ul style="list-style-type: none"> • Case studying without reflecting on either purpose or strategy • Treating the course as unrelated bits of knowledge • Memorizing facts and procedures routinely • Finding difficulty in making sense of new ideas being presented • Feeling undue pressure and worry about work 	<ul style="list-style-type: none"> • Relating ideas to previous knowledge and experience • Looking for patterns and underlying principles • Checking for evidence and relating it to conclusions • Examining logic and argument cautiously and critically • Becoming actively interested in course content

Moon (1999, 122)

Reflection, as defined by Kember et al (2008) “necessitates a change to deep-seated and often unconscious beliefs and leads to new belief structures” p. 374. Accompanying deep learning is critical reflection which is considered the highest form of reflection (Kember et al, 1999; 2008).

2.1 Reflection in Action versus Reflection on Action

Donald Schon (1983) developed the concepts of “reflection in action” and “reflection on action” and drew a distinction between them. Reflection in action describes the thinking that occurs while performing an action or working on a project or problem. He described it as akin to “thinking on your feet”. It is thinking that is specific to a professional practice, and it occurs during the practice of that professional activity. Another example of this is what Schon called “knowing-in-practice” or “thoughtful actions” which occurs when work becomes routine, and there is no need to reflect upon actions. For Dewey (1938), this occurs in the scientific laboratory; for Schon (1983) it happens in the design studio.

In contrast, “reflection on action” takes place after the event has taken place. Schon (1991) identified three stages that occur when there is “reflection on action”: conscious reflection, criticism, and action. Moon (1999) argued that through “reflection on action,” students are able to advance their learning to even higher levels following the initial time of learning. He believed that “reflection on action” had the ability to make students cognizant of their learning and their strategies to learning (hence, using metacognition).

Boud et al (1985) described this as a processing phase that is most important to learning and that only learners themselves can learn and reflect on their experiences. They also indicated that reflection must be deliberate and active so that the learners are aware of their own learning. They indicate that the process is complex where both emotions and learning are connected and interactive.

3. REFLECTION THROUGH JOURNALING

It has been demonstrated that reflection is facilitated by journal writing (Boud et al, 1985; Moon, 1999a). Boud et al (1985) postulated that reflection requires taking the unprocessed matter of experience and dealing with it in some way to make sense out of it. In terms of learning, the journal may be both the place where experiences are documented, and the medium by which they are sorted out and reformed. The purpose of this recording is to understand the experiences, appreciate learning that has resulted, and build a basis or framework for new experiences that will evoke new learning. Some learning requires time and the capacity to view experiences in a wider context; journaling can facilitate this. Moon (1999a) discussed the many uses of reflection in learning through journals: to strengthen the quality of learning in the form of critical judgment or cultivating an enquiring attitude; to facilitate learners' understanding of their own learning process; to improve active engagement in learning and ownership of learning; to improve professional practice or the professional identity in practice; to increase the personal valuing of the person; to become more self-empowering; and to increase creativity by using intuitive understanding.

Donald Schon (1983) focused on studio-based and project-based learning. He postulated that journaling is a structured critical reflective learning framework that is applicable to studio-based and project-based learning. Studio-based learning includes four basic steps: formulation of the graphic design problem; examination of solutions through doing (action-based activity); problem re-examination; and then the final product. Project-based learning has been identified as a far-reaching approach that enables the student to explore real problems (Schon, 1983). Therefore, project-based learning can serve to create a link between classroom and real-life problems or experiences. It appears that when journaling is included in the studio-based learning, students increase their metacognitive skills.

4 SELF-EFFICACY AND REFLECTION

Research over the past 25 years suggests that self-efficacy affects achievement (Bandura, 1977; Ames & Archer, 1988; Pintrich & De Groot, 1990; Multon, Brown, & Lent, 1991; Leach, Querolo, DeVoe, Chemers, 2003). Bandura (1977) defined self-efficacy as personal judgment about one's capabilities to manage and perform actions at designated levels. Multon et al (1991, 30) defined self-efficacy as a belief in "one's ability to successfully perform a given behavior." Self-efficacy cannot be generalized; it is specific to the particular task to be performed or the particular domain where the task lies, such as that of graphic design. A person might feel confident in one area (or venue), but that does not apply to all areas.

Horn et al (1993) report that self-efficacy has no direct effect on achievement, but it does influence strategy use which, in turn, affects academic achievement. Pintrich and De Groot (1990) also reported that high self-efficacy is positively related to the use of cognitive strategies that, in turn, positively affect academic achievement. Students with high self-efficacy employ more self-regulating learning strategies to their studies and are more successful. Zimmerman (2000) noted that students with high self-efficacy are better at monitoring their working time, are more determined, are less likely to negate a correct hypothesis too early, and are better at working out theoretical problems; they use better cognitive strategies. Thus, it would be expected that students who reflect on action, hence using metacognition, will have higher self-efficacy.

CHAPTER THREE: REVIEW OF THE LITERATURE

Graphic design is traditionally taught through learning by doing with only the final product being assessed. This focuses students on the final product rather than the processes or strategies used to achieve the outcome. It is important for students to know and understand their own processes or strategies and also to be able to critique them so that they may self-regulate these when required. How do we find out what deep learning the students have acquired, if any, and how can we help them with this process?

In an effort to assist in the process of deep learning, the notion of reflection as an intellectual activity has been frequently discussed since Dewey's seminal work in 1938. However, there has been very little empirical research conducted in the field of graphic design. One might extrapolate from the work of Donald Schon (1983, 1985) who extensively explored the notion of "reflection in action" (reflection during as project) in studio-based learning; however, this researcher is also interested in the effects of "reflection on action"—that is reflecting after projects have been completed. Since it has been established that journal writing encourages reflection, this literature review will discuss some of the empirical studies that have examined the effectiveness of journal writing.

There appear to be only a few researchers who have studied journaling in the graphic design field. Publications include those by Ellmers (2006), Ellmers and Foley (2007), and Ellmers, Brown, and Bennett (2009), in particular. Their works are reviewed below. However, it was felt that one may be able to gain insight from studies in other fields investigating reflective practice as well, particularly those using learning journals. We will begin there.

1. RESEARCH ON REFLECTION AND LEARNING IN DIVERSE DISCIPLINES

Langer (2002) researched how adult students in a technical computer course reflected when required to write learning journals in Columbia University's Computer Technology program in Continuing Education. Learning journals from twenty students were selected for the case study. There were three aspects to the selection process: equal numbers of males and females, ten students from each of the two sections of the course, and an equal distribution of students from the three different case study majors. The actual selection was made by sequentially selecting every tenth student in alphabetical order by last name. The instructor required weekly submissions of learning journals for the 15-week course. Three researchers read 300 learning journals. Content analysis was performed on the learning journals with the aim of examining information about content, formatting style, and subject matter. They also read for signs of critical reflection. The content analysis focused on the overall value students gave to the lectures. These findings were then summarized and themes were extracted so that questions could be written for a subsequent stage in the research interview. Ten students were interviewed six months after the course was over. These students were approached in a subsequent course where the instructor announced that volunteers were being sought. The participants did not receive a copy of the questions but were told the main topics that would be discussed. The researchers provided the interview guide in an appendix. The purpose of the interview was to gain an understanding of their views of the journal-writing assignment and of the long-term effects of learning journals on students. Results from the interviews indicated that knowledge transfer was the most beneficial characteristic of the learning journals. Half of the students continued to use learning journals in other classes even though they were not a requirement.

Results from the content analysis indicated that fifty-five percent of students became more self-reflective in the second half of the course; this increase in self-reflection was attributed to a dialogue with the instructor who promoted more

reflection and also to a natural progression due to experience and practice. Of the 45 percent who did not progress, it was suggested that some of these students did not see the relevance of journaling. There was no summary of findings for the interviews that took place.

Terrion and Phillion (2008) investigated the processes peer mentors undertook to reflect on and assess their practices with their mentees in the Faculty of Arts at the University of Ottawa in a peer-mentoring program. Electronic versions of 192 journals completed by seven mentors during one year were explored using content analysis to find themes related to the learning process. Journals were analyzed line-by-line using the qualitative software, NVivo. Two coders (the two authors) separately reviewed the 192 journals to identify significant themes that reflected the mentors' learning experience. The coders then met to agree upon the definitions of the themes. Disagreements between the coders were resolved through discussion, and 100 percent agreement was achieved on the identification of the themes.

Terrion and Phillion (2008) found that students (who were peer mentors) learned deeply when reflecting on action. Journal writing seemed to be a vital element of mentor training; it was a forum where mentors could reflect on their work. The mentors participated in double-loop learning, which is defined as taking a second look at performance and reflecting on what had taken place, why they did what they did, and any factors that influenced their decisions. Their journaling went way beyond reporting and toward critical reflection of their practice.

In addition to the formal training offered through the University's Student Academic Success Service, some peer mentors received support and feedback through an electronic journaling system that recorded communication between the mentors and their supervisor, a staff member of the university. Also considered was the role of dialogue between mentor and supervisor in the reflective process.

The researchers learned that the mentors demonstrated that they reviewed their behavior and reflected on what they had done. The self-evaluation and critical reflection found in the mentors' journals provided support for Schon's (1983) reflection-on-action practice. In addition, the data supported the notion that the journal functions as a medium for dialogue between supervisor and mentor by examining the questions posed to the supervisor and the responses by the mentor.

Leung and Kember (2003) explored the linkage between approaches to learning and reflection on practice (reflection on action). Two questionnaires, using a four-point Likert scale, were developed, tested (Kember et al, 2000) and distributed to 402 undergraduates in all three years of case study in a health science faculty at a Hong Kong university. The scales in the questionnaire corresponded to "four levels of reflective thinking: habitual action; understanding, reflection, and critical reflection" (p. 64). Both of these Likert scale questionnaires were distributed in class, and the students were asked to complete them before leaving the classroom. The return rate was greater than 80 percent. The correlation between deep and surface approaches to learning was -0.27 which illustrated that the two approaches were not orthogonal, but rather they were negatively related. There was a strong correlation of 0.65 between habitual action and surface approach to learning, illustrating that learners who engaged in habitual action were also likely to take a surface approach to learning. There were also positive correlations between a deep approach to learning and the other three levels of reflection. The notion that deep approaches to learning correlate with the three higher levels of reflection, but not with habitual action supported the original hypothesis.

Phan (2009) also examined the link between the four phases of reflection as defined by Kember et al (2000) and academic performance. Participants in this case study were 304 (131 female and 173 males) first-year Liberal Arts and Science students enrolled in a Psychology course at a medium-size university. Participation was voluntary and a Likert scale questionnaire was handed out in tutorial classes with

the assistance of a tutor. Each participant was asked to record their student number for the purpose of collecting academic performance grades in their courses.

Phan (2009, 939) found that “the regression of academic performance on the basic model (adjusted $R^2 = .0005$) yielded significant relationships for understanding ($\beta = .18, p < .005$) and reflection ($\beta = .26, p < .0005$), but not habitual action or critical thinking” (p. 939). Results in this quantitative case study showed the significance of the understanding and reflection phases and persistence as direct causes of academic performance. However, the researcher found no link between critical reflection and academic performance. The author attributed this to the type of learning outcomes and assessment methods used in the course which emphasized lower level learning.

Roberts and Yoell (2009) investigated students’ perceptions of using learning journals in the Welsh School of Architecture, Cardiff University, and attempted to identify the ensuing learning strategies and attitudes that these students assumed. The learning journals were introduced to an entire cohort of 63 second-year architecture students. These journals were seen as a tool whereby students could reflect upon their achievement of learning outcomes. There was no specific content or format requirement, but students were advised that they might want to include design process work, evaluations and reflections of case study habits, as well as any decisions made or insights acquired. The journals were intended to provide evidence of how students learned from their academic experience. To assist with this process, tutorials were held three times during the semester (start, middle, and end) to assist students with any questions they had about the journal process. The purpose of the research was to gain an awareness of the variety of attitudes toward using learning journals as a means of reflective practice and to understand those differences.

Semi-structured interviews were carried out as the primary source of data collection. The students selected for the interview were all in the current third year of the program. They had all completed journals the previous semester. According to the

authors, as this research was only intended to generate a hypothesis that could later be tested, statistical validity was not an issue. Therefore the sample was selected so that the participants showed a balanced range of attitudes towards reflection. Out of the 63 original subjects, nine were chosen with three showing a positive attitude, three being ambivalent, and three demonstrating a negative attitude about the experience. Of all the willing students, no males showed a positive attitude. Two themes which could be placed in two categories emerged from the interviews: perceptions of external context and perceptions of learning. It was clear that how the students approached writing learning journals was influenced by their perceptions of the external context. The majority of students interviewed believed that the reason they were completing the journal was because it was a ministry requirement rather than something that would be for their own learning benefit. The interviews suggested that this confusion about external context could be related to the way the journal assignment was introduced to students.

Regarding the perceptions of learning, the authors indicated that, on the whole, many students (they never stated if this was a majority), reported that the journal gave them a sense of achievement and pride and cited several examples:

“I realized that I’d actually done well: I thought that it encouraged me to do more work, to sort of keep doing well.”

The authors suggested that those who were naturally inclined to keep a journal had fewer issues and frustrations than those who were not. The case study categorized three possible opinions toward journaling held by the students as: “natural; convert; and disengaged” (p. 74). “Naturals” were students who were already inclined to write and found value in it. “Converts” were those students who were initially skeptical but became converts. One particular student’s responses moved from ‘pointless’ in the beginning to ‘quite useful’ at the end of the term.. The “disengaged” found little benefit in completing the learning journal. These were students who only went through the motions when journaling and chose to not reflect deeply

The research done by Roberts and Yoell (2009) emphasized the value of how learning journals were implemented and the importance of supporting students in cultivating their ability to reflect. Many students saw the benefits of producing learning journals and indicated that their sense of pride and achievement often came as a surprise, something that might not have taken place had they not journaled. Students indicated that journaling assisted with their organizational skills, and also provided a place to vent when things were not going well. It was noted that the students' understanding of the purpose and benefits of learning journals were not the same as the staff's. Those students who did not understand the benefits and purpose took a surface approach.

2. RESEARCH ON REFLECTION AND LEARNING IN THE FIELD OF GRAPHIC DESIGN

Ellmers (2006) investigated whether the reflection-on-action framework (Schon, 1983, Boud et al, 1985)—in this case journaling after a project had been finished—enhanced learning outcomes in a final third-year undergraduate graphic design course. Students were required to journal one week after the completion of the final design project; they were given guiding headings to address in their journals. In addition, a questionnaire was given in an anonymous online format using a five-point Likert scale of strongly agree, agree, uncertain, disagree, and strongly disagree. The students were asked to respond to a collection of topics to learn about their engagement with and knowledge of the design process and how they might apply their learning to future projects.

Of the 39 students enrolled in the course, 20 participated in the survey, providing a 51 percent response rate. Sixty percent of the respondents agreed or strongly agreed that the reflective journal assessment helped their understanding of the design process. Fifty percent of students strongly agreed or agreed that incorporating reflection into an assessment task offered an effective model for thinking about the design process.

Anecdotal evidence indicated improved learning based on reflective journals as illustrated by improved dialogue of the design process. Most students did not reflect deeply enough, however. To encourage this, the reflective assessment was introduced in the second year of the program so that they would gain the practice and learn to reflect more deeply by third year. Forty percent of students were still uncertain about the linkage between reflection and thinking about the design process. The researcher noted that adding a reflective component to a graphic design project improved learning opportunities. He postulated that the inclusion of a reflective framework provided the learner with a scaffold to engage with the process of design. Adding a formalized assessment task to the reflective structure, the author suggested, motivated and focused students to connect with the last stage of reflection and provided them with an opportunity to articulate their understanding.

Ellmers et al (2009) continued his research begun in 2006. The goal of this research became more specific than learning outcomes alone. The objective of the 2009 case study was to investigate the connection between structured critical reflection (reflection on action) and the communication of knowledge intrinsic in the design experience, leading to a transfer of that knowledge to new and different projects. The researchers used a taxonomy developed by Bennett (2002) that identified five levels of cognition evidenced in student reflective writing. They are *reproductive description*, *summarizing description*, *interpretation*, *judgment*, and *generalization*. In collaboration with Bennett, a sixth level was added—*abstraction*. This involves moving beyond a project to address future design projects.

A nested case study approach (a single classroom) was used that drew on both qualitative and quantitative methods where thirty-four students were enrolled in a core design course in the final semester of the three-year Bachelor of Creative Arts (Graphic Design) at the University of Wollongong, in Australia. No mention was made about how these students were recruited or whether it was voluntary or not. Data was obtained through a survey with qualitative and quantitative questions and semi-structured interviews with nine volunteers at three intervals during the course.

Furthermore, the researcher kept a journal and participants submitted reflective reports. These offered additional data. The reflective reports included a 1200-word reflection-in-action interim assessment repeated three times during the design project and a 4000-word reflective assessment completed after submission of the final project that instructed students to reflect on the entire project (reflection on action).

Data analysis is not complete so content analysis has not been done to date. Only some preliminary results and observations are currently available. The data from an individual participant was presented to show the nature and approach of the data analysis. The four reflective assessments were coded using the six-level taxonomy framework discussed on page 30. There was higher-level cognition present in the *New Learning* and *Future Practice* sections of the reflective assessment that represented reflection on action; these two sections were not required for the three reflection-in-action assignments. Significantly, a methodology was created to explore reflection in action and reflection on action in graphic design. This framework appears to be very rigorous.

As noted at the beginning of this literature review, very little empirical research has been published regarding the use of reflective learning journals in the field of graphic design. Furthermore, nothing has been documented at the college level. The studies that have been published are based on university students.

To that end, the goal of this research endeavor is to investigate whether second-year students in the NewMedia and Publication Design Program at a small Anglophone Cégep in Québec, enrolled in a Page Layout and Design course, learn more deeply by reflecting in action during design projects or reflecting on action after completing design projects. In addition to the primary question, there is another secondary question: does self-efficacy improve when students reflect in or on action? The purpose of this empirical case study is to investigate this assumption.

The original hypothesis for this study was that journaling would promote a deep approach to learning, thus supporting Leung and Kember's (2003) notion that

the approach to learning is related to the level of reflective thinking. Using the concepts developed by David Schon (1983), however, it has now been refined to read as follows: It is this researcher's hypothesis *that reflection-on-action journaling will promote a deeper approach to learning than reflection-in-action journaling*, thus supporting Leung and Kember's (2003) notion that the approach to learning is related to the level of reflective thinking. Secondly, it is hypothesized that *the level of self-efficacy in graphic design improves as students are encouraged to think reflectively*.

CHAPTER FOUR: METHODOLOGY

1. RESEARCH DESIGN

The primary goal of using journals is to encourage students to reflect deeply in order to learn from their specific design projects in ways that would allow them to apply their knowledge to future projects and, therefore, to think metacognitively. Journal assignments can be given during a project or after a project has been completed. The question was—does it make a difference to the quality of the student’s reflection as to when the journal assignment is given? To answer this question, this researcher studied how one group of students (enrolled in a single course) responded to two different learning strategies: journaling in the midst of a design project (reflection in action—RIA), and journaling after a project was completed (reflection on action—ROA).

It was hypothesized that reflection on action would promote deeper learning than reflection in action. A secondary hypothesis was that, as students became aware of their learning through journaling, their self-efficacy would improve. A mixed-methods approach was taken in order to triangulate the results.

Both qualitative and quantitative methods were used to collect and analyze the data. To address the first hypothesis, content analysis of journal entries and interview responses was the primary method. In addition, supplementary quantitative data was obtained through administering a survey. For the second hypothesis, quantitative methods were used through the use of two surveys, one administered early in the Fall 2011 semester and the second administered early in the Winter 2012 semester. In addition, supplementary data regarding self-efficacy was obtained in the form of content analysis of journal entries and interviews.

The entire data collection process spanned four months, spread over two semesters. The data collection consisted of three reflection-in-action journals and

three reflection-on-action journals spread over the Fall 2011 semester, face-to-face interviews with four volunteer participants early in the Winter 2012 semester, and two surveys, one early in the Fall of 2011 and the other early in the Winter of 2012.

2. A CASE STUDY

2.1 Characteristics of the Sample

Although the population for this case study was all students in Québec CEGEPs enrolled in the 412 program, the sample consisted of 11 students enrolled in the Page Layout and Design course in the Fall 2011 semester at a small Anglophone college in West Québec. Although originally 14 students agreed to be participants in the study, only 11 students remained. Two students withdrew from the program (one in November 2011 and the other in January 2012, before the second survey was administered). In addition, one student was absent in the fall when the first survey was given. To ensure consistency in the analysis, only the data, collected from 11 students was used. For the interviews, the sample involved four volunteers solicited from the same group of students.

The sample was comprised of ten females and one male. All were second-year NewMedia students; 64 % were between 16 and 18; 36% were between 19 and 22 at the beginning of the fall semester. Fifty-Five percent of the students' mother tongues were English; 28% were French; and 18% were other.

2.2 Ethical Considerations/Method of Recruitment of Participants

2.2.1 Journals

Students were required to journal as part of the course, using guiding questions; however, permission was sought to use the content of the student journals in this research through a consent form distributed by a member of Academic Services (See Appendix B—Informed Consent for Journals and Surveys.). The consent forms were stored in Academic Services. This person also acted as a student advocate/ ombudsperson during the cycle of the research. In terms of survey results,

the identification of those who agreed to participate was not known by the researcher until after the grades had been submitted for the Fall 2011 semester and the second survey had been administered in late January.

2.2.2 Surveys

A survey was administered by the same member of Academic Services at the beginning of the course and again after the course had been completed. Students were told that they were not required to take the survey; however, those who chose not to participate were asked to wait quietly while the others completed the survey (See Appendix G—Fall Success Survey and Appendix H—Winter Success Survey.)

2.2.3 Interviews

Students were invited to a face-to-face interview by the researcher via email early in the Winter 2012 semester (See Appendix E—Interview Email Request and Interview Guide). An interview guide was provided to the volunteers at the time of the request. Consent forms were signed at the time of the interview, and these interviews were recorded using an audio recorder with verbal consent from the student. Cafeteria vouchers were given as a token of appreciation to these student volunteers. The interviews were later transcribed and then the text was analyzed.

Given the nature of the case study's design, the coded journals and the survey responses needed to be matched to the participants; therefore, anonymity was not possible. Nevertheless, participants were guaranteed confidentiality. This design enabled the researcher to track the level of reflection of each participant throughout the journaling process, as well as to compare the responses of each participant in the first and second surveys with regard to self-efficacy. This analysis began only after the grades were submitted.

3. INSTRUMENTS

3.1 Reflection-in-Action and Reflection-on-Action Learning Journals

Six learning journal assignments were given to the students—three during the creation of three projects (reflection in action—RIA), and three a week after the projects were completed (reflection on action— ROA). As the researcher did not wish to influence the student journaling in any way, no grades were given for the projects until the journals had been submitted. Students were given guiding questions so as to provide some structure to the journals, and to ensure the questions had been answered regarding reflection and self-efficacy (See Appendix C and D—Reflection in Action Journal Instructions and Reflection on Action Journal instructions). All journals were coded using the four-category scale developed by Kember et al (1999) that assesses the level of reflection in written work (see Table 2 below). This protocol was tested and considered reliable using Cronbach alpha values for each scale.

There were 66 journals to analyze. The effects of the two different learning strategies (reflection in action and reflection on action) were examined to measure for levels of reflection, as well as levels of self-efficacy.

Table 2 – Kember et al.’s Reflection Taxonomy

Level of Reflection	Description
Habitual Action or Non-Reflection	The student follows a procedure without significant thought about it.
Understanding	The student attempts to reach an understanding of a concept
Reflection	The student takes the understanding of the concept and applies it to personal experience
Critical Reflection	The student thinks back over, and then critically comments on what has happened in the project, and then uses this new learning to improve future activities. This is the highest level of reflection

Kember et al. (1999)

Table 2 on Page 38 illustrates the taxonomy used for level of reflection. There was no taxonomy for self-efficacy as it emerged from the journals where instances of self-efficacy presented themselves.

3.2 Surveys

All students who consented were given two self-efficacy surveys to complete—one at the beginning of the fall semester and the second at the beginning of the winter semester. The variables that were measured—self-efficacy and students' beliefs about the value of journaling both in and on action (winter semester survey only)—provided answers to the two research questions. The surveys were adapted from the work of Schwarzer and Jerusalem (1995) (See Appendix G—Fall Success Survey and Appendix H—Winter Success Survey.) These surveys were tested for reliability; in the samples provided from 23 countries, Cronbach's alphas ranged from .76 to .90, with most in the high .80s.

3.3 Interviews

Four students responded to the interview Email Request (Appendix E). They were interviewed in Winter Semester, 2012. Standardized open-ended probative questions, based on the work of Langer (2002), were asked regarding reflection-in-action and reflection-on-action journaling and self-efficacy, and the responses were summarized into themes for each question and provided answers to the two research questions. (See Appendix E—Interview Email Request and Interview Guide.)

4 DATA ANALYSIS

There were eight instruments used to collect data from the 11 participants over a four-month period. Table 3 (on the following page) gives an overview of methods of data analysis for each instrument.

Table 3 – Overview of Data Analysis

Instrument	Method	Type of Data Analysis
3 Reflection in Action Journals	Qualitative	Content analysis for level of reflection (a priori) and content analysis (summaries emerging from the data) for self-efficacy
3 Reflection on Action Journals	Qualitative	Content analysis for level of reflection (a priori) and content analysis (summaries emerging from the data) for self-efficacy
2 Surveys (pre and post course)	Quantitative	Statistical analysis
Interviews (audio recorded and transcribed)	Qualitative	Content analysis (summaries emerging from the data)

4.1 Journals

The material from the journals was analyzed using content analysis and illustrated through direct quotes from students. These journals were coded using the taxonomy developed by Kember et al. (1999), as illustrated in Table 2 on Page 37. In addition, summaries emerging from the data were used to measure levels of self-efficacy (weak, moderate, and strong), again illustrated through direct quotes from students.

To ensure inter-rater reliability, the help of a colleague in the Mathematics department was enlisted to code 20% of the journals; journals were chosen randomly by picking, out of an envelope, coded names attached to the six different journals. Using Kember et al.'s taxonomy as pre-determined codes, the two coders (researcher and mathematics professor) worked together to reach agreement on the coded units of reflection. The coders reached 98.2% agreement on the identification of the levels of reflection in the journals.

Several tables were used to summarize the data coded in the journals. Excel stacked column and pie charts were used to illustrate and compare the levels of reflection in reflection-in-action and reflection-on-action journals. A line chart was used to compare the levels of reflection across all reflection-in-action and reflection-on-action journals. Statistical analysis was used to compare growth from reflection-in-action to reflection-on-action journals in total and for each individual participant.

4.2 Surveys

The variable measured in the first survey that was distributed at the beginning of the Fall 2011 semester was level of self-efficacy. The variables measured in the second survey, distributed at the beginning of the Winter 2012 semester were level of self-efficacy and student beliefs regarding the value of one type of journal over another (did students find the reflection-on-action journals more valuable than the reflection-in-action journals). The surveys were based on a five-point Likert scale, ranging from strongly agree to strongly disagree. The surveys were based on the work of Schwarzer et al. (1995). A table comparing the change in self-efficacy (increase or decrease) for each question was used to explain the results. In addition, all changes were totaled for each student, and totals were noted for each question to learn if one particular question elicited more change than others.

4.3 Interviews

Semi-structured probative questions regarding reflection-in-action and reflection-on-action journaling and self-efficacy were asked of the four students who volunteered. The responses were summarized using an emerging approach with direct quotes from participants.

4.4. Summary

By using three different instruments to collect and measure the variables involved in this case study, it was the researcher's intent to triangulate the results and therefore enable the researcher to gather meaningful findings.

CHAPTER FIVE:

PRESENTATION AND INTERPRETATION OF THE FINDINGS

The analysis of the data has been organized according to research question and then according to the instruments used to triangulate the results.

1. RESEARCH QUESTION 1

The first question the researcher sought to answer was whether *reflection on action journaling promoted a deeper approach to learning than reflection in action journaling*.

1.1 Journals

Students were asked to journal half way through three projects (reflection in action) and again a week after each of the three projects had been submitted for grading (reflection on action). The first project was a public service announcement (PSA), where students were required to choose a non-profit organization important to them and create a poster promoting that organization in some way (either awareness or fund raising). The second project was a book jacket based on a classic novel, where students were required to choose the title of their book out of a hat. The third project was a packaging project. This was their first encounter with three-dimensional design. Students were given the dimensions of the package, and they were required to choose a product that would fit into the package.

Guiding questions were provided to ensure some structure to the journals and also to ensure the questions had been answered regarding reflection and self-efficacy. (See Appendix C and D —Reflection-in-Action Journal Instructions and Reflection-on-Action Journal Instructions) Sixty-six journals were coded and analyzed using Kember et al.'s (1999) taxonomy.

Table 4 – Kember et al.’s Colour-Coded Taxonomy

Level of Reflection	Description
Habitual Action or non- reflection	When a procedure is followed without significant thought about it
Understanding	Student attempts to reach an understanding of a concept
Reflection	The students takes the understanding of the concept and applies it to personal experience
Critical Reflection	This is the highest level of reflection. Thinking back over, then critically commenting on what has happened in the project, then using this new learning to improve future activities.

When coding the journal entries, the colour-coded taxonomy, as seen in Table 4, was used. Student writing (phrases, sentences, and sometimes paragraphs) were coded in the corresponding colour of the level of reflection. Comments were placed in the margin of each coded entry explaining the rationale for the level of reflection chosen.

Table 5 – Samples of Coded Entries for each Level of Reflection

Level of Reflection	Description
Habitual Action or Non reflection	<p>I didn't learn much new about the program other than that I likes to be a pain with placing images, because I really don't like how InDesign has a placement box and an image box. Also, I believe I could have done this whole project in Photoshop without having to use InDesign at all because I made everything in Photoshop and I just placed it all in InDesign and I really hated going back and forth between two programs [sic]. (ROA Book jacket – Student I)</p> <p>My comment in the margin: Students did what was required without trying to understand why; this is non-reflection.</p>

<p>Understanding</p>	<p>I was going to use recycling and the environment, but I did not get enough ideas or they were not original. I then choose smoking because I know many smokers that are in my surroundings that smoke all the time and it bugs me. (RIA PSA – Student C)</p> <p>My comment in the margin: Student is not attempting to apply the concept to personal experience but is trying to understand.</p>
<p>Reflection</p>	<p>Right now I don't have any problems but I am working on trying to make the cracks and blood of my rough look real and convincing. I haven't check Google or YouTube yet but YouTube usually helps one way or another so I planning on checking it out [sic]. (RIA PSA – Student J)</p> <p>My comment in the margin: Student is problem solving and able to critique her own work; this is reflection verging on critical reflection as she knows where to go when she has problems.</p>
<p>Critical Reflection</p>	<p>As a designer, I learned the importance of layouts. Before this project, everything I made was posters, so I did not need to worry about the folding and where objects would end up. This was also a good preparation for the box design, as the book jacket as a simpler layout to understand, meaning that we would have practice when it comes to the box and its folding [sic]. (ROA Book Jacket – Student C)</p> <p>My comment in the margin: She learned the importance of layout and was able to appreciate its importance for the next project.</p>

Table 5 above shows an example of each level of reflection and the comment inserted by the researcher to explain the rationale for coding it as that particular level of reflection.

Data analysis began with the aim of comparing the level of reflection within each type of journal, with the purpose of learning if students' level of reflection deepened with practice over time. Secondly, depth of reflection was compared between the two types of journals. In addition, each student was tracked for level of reflection within each type of journal and between the two types of journals.

Increases or decreases in level of reflection (*critical reflection*) were also noted. In the following table, the number of utterances associated with each level of reflection is recorded.

1.1.1 Reflection-in-Action Journals

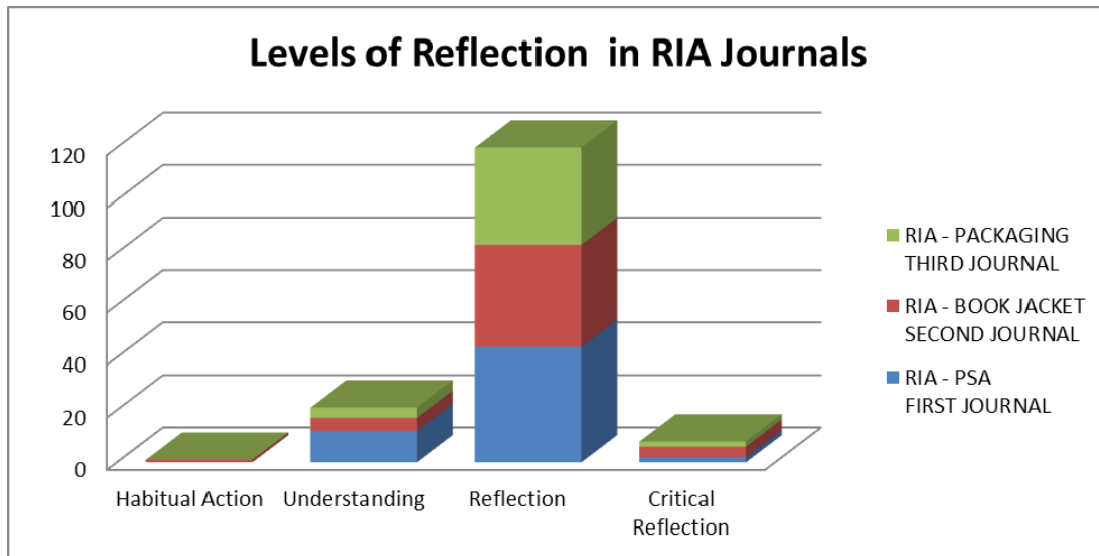
Table 6 – Levels of Reflection in Reflection-in-Action Journals As Revealed in Utterances

Levels of Reflection	First Journal	Second Journal	Third Journal	Total
Habitual Action or Non Reflection	0	1	0	1
Understanding	12	5	4	21
Reflection	44	39	37	120
Critical Reflection	2	4	2	8

Table 6 above illustrates that there was not a great change in the higher levels of reflection across the three reflection-in-action journals. In other words, students did not reflect more deeply in the reflection-in-action journals as they gained experience; the exception was for the lower level of reflection of *understanding* (second level of four). There were 12 instances of *understanding* in the first journal, 5 in the second, and 4 in the third.

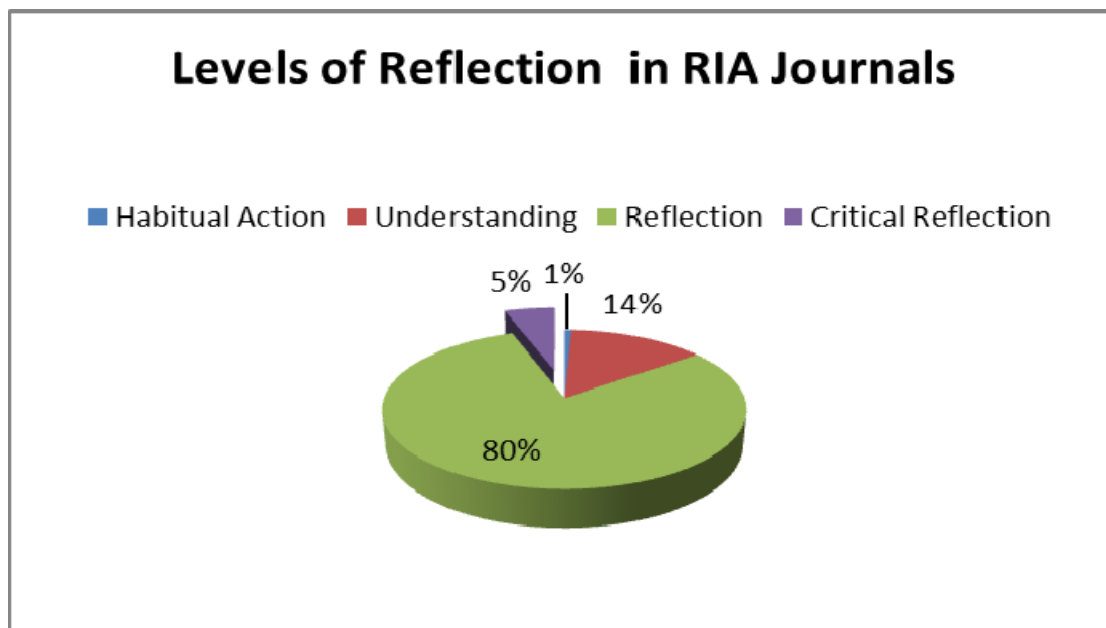
Of the 150 coded responses, 44 instances of *reflection* (third of four levels) in Journal 1; 39 in Journal 2; and 37 in Journal 3 were noted. There were 2 instances of *critical reflection* (highest level) in Journal 1; 4 instances in Journal 2; and 2 in Journal 3.

Figure 1 – Levels of Reflection in Reflection-in-Action Journals



Students did show solid evidence of *reflection* throughout the three journals, as evidenced in Figure 1 above, although few were at the deepest level.

Figure 2 – Levels of Reflection in Reflection-in-Action Journals in Percentages



Of the 150 coded responses over the three journals, 80% were at the reflection level and 5% were at the *critical reflection* level (see Figure 2 above).

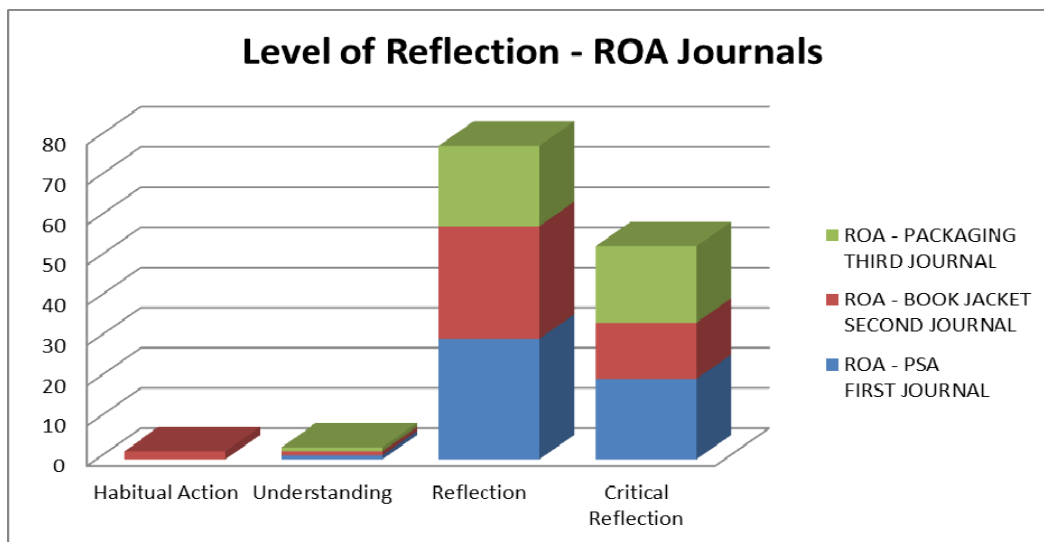
1.1.2 Reflection-on-Action Journals

Table 7 – Levels of Reflection in Reflection-on-Action Journals As Revealed in Utterances

Levels of Reflection	First Journal	Second Journal	Third Journal	Total
Habitual Action or Non Reflection	0	2	0	2
Understanding	1	1	1	3
Reflection	30	28	20	78
Critical Reflection	20	14	19	53

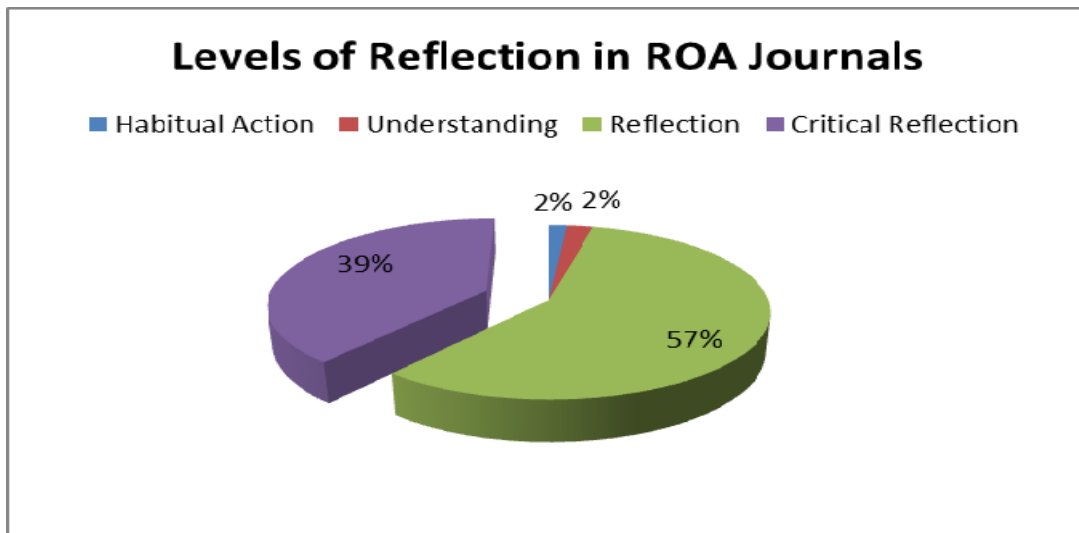
As illustrated in Table 6 on page 43, there was little growth from one journal to the next in the level of reflection in reflection-in-action journals. The same was true for the reflection-on-action journals, as show in Table 7 above.

Figure 3 – Levels of Reflection in Reflection-on-Action Journals



What is significant in the ROA journals is the number of coded responses that were of the highest level—*critical reflection*. Of the 136 coded responses, 53 responses were coded as *critical reflection* (see Figure 3 on page 45).

Figure 4 – Levels of Reflection in Reflection-on-Action Journals in Percentages



Of the 136 coded ROA responses over the three journals, 57% were at the *reflection* level and 39% were at the *critical reflection* level, as illustrated in Figure 4 above

1.1.3 Reflection in Action vs. Reflection on Action—Levels of Reflection

The levels of reflection between the two different types of journals (see Table 8 on the following page) were compared. What was significant in the

Table 8 – Comparing Levels of Reflection in Reflection-in-Action and Reflection-on-Action Journals As Revealed in Utterances

Levels of Reflection	RIA Journals	ROA Journals
Habitual Action or Non-Reflection	1	2
Understanding	21	3
Reflection	120	78
Critical Reflection	8	53

reflection-on-action journals was the increase in the number of coded responses that were of the highest level—*critical reflection*. Fifty-three responses were coded as *critical reflection* in the reflection-on-action journals, whereas only eight were coded this way in the reflection-in-action journals. Only 5% of the coded responses in the reflection-in-action journals were deemed of the highest level—*critical reflection*, whereas 39% were considered *critical reflection* in the reflection-on-action journals (see Figure 2 on Page 44 and Figure 4 on Page 46).

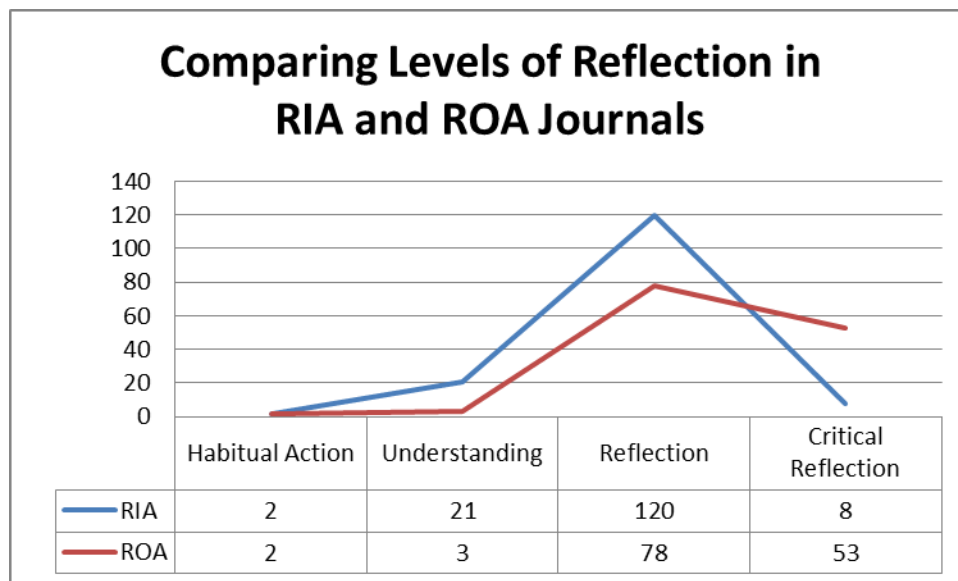
Table 9 – Comparison of Levels of Reflection As Revealed in Utterances

Levels of Reflection	RIA 1	ROA 1	RIA 2	ROA 2	RIA 3	ROA 03
Habitual Action	0	0	1	0	0	0
Understanding	12	1	5	1	4	1
Reflection	44	30	39	28	37	20
Critical Reflection	2	20	4	14	2	19

What was also noteworthy was the comparison of the two different types of journals for each project. Table 9 on page 48 summarizes the findings. For the first project, the lower level reflection of *understanding* was coded 12 times in the reflection-in-action journal but only once in the reflection-on-action journal. In addition, it is important to mention that *critical reflection* was only coded twice in the reflection-in-action journal, but 20 times in the reflection on action for the same project.

In the second project, there were four instances of critical reflection in the reflection-in-action journal and 14 in the reflection-on-action journal. Similar increases were apparent in the third project journals where two instances of *critical reflection* were coded in the reflection-in-action journal and 19 in the reflection-on-action journal. Clearly, there was a significant increase in the level of reflection in the reflection-on-action journals. Reflection-on-action journaling promoted deeper reflection. The line

Figure 5 – Comparing Levels of Reflection in Reflection-in-Action and Reflection-on-Action Journals



graph in Figure 5 above illustrates the marked difference in critical reflection in the reflection-on-action journals.

1.1.4 Comparing Individual Student Progress across the Journals

Each student's level of reflection in the reflection-in-action and reflection-on-action journals was compared. There was significant growth in *critical reflection* in the reflection-on-action journals in contrast to the reflection-in-action journals.

Table 10 – Percentages of Critical Reflection for Each Student

Student	A	B	C	D	E	F	G	H	I	J	K
Mother Tongue	Eng.	Eng.	Fr.	Eng.	Eng.	Fr.	Eng.	Fr.	Eng.	O	O
Age	19/22	19/22	16/18	16/18	16/18	16/18	19/22	19/22	16/18	16/18	16/18
RIA	(N=12) 17%	(N=12) 0%	(N=11) 0%	(N=11) 9%	(N=12) 0%	(N=12) 0%	(N=13) 0%	(N=11) 0%	(N=14) 0%	(N=17) 29%	(N=14) 14%
ROA	(N=15) 40%	(N=18) 33%	(N=13) 39%	(N=12) 50%	(N=14) 57%	(N=17) 20%	(N=13) 54%	(N=12) 25%	(N=15) 20%	(N=13) 23%	(N=11) 27%
Increase/ Decrease	+23%	+33%	+39%	+41%	+57%	+20%	+54%	+25%	+20%	-6%	+13%

When evaluating the reflection-in-action and reflection-on-action results presented in Table 10 above, one can see that, except for student J, all students showed an increase in critical reflection. By having the mean (29%) close to the median (25%), one can expect students to increase their critical reflection through reflection-on-action journals. However, the standard deviation (18%) suggests that there is a significant variation in the percentage of increase amongst students. This could be attributed to the fact that the sample was very small (11 students), or to the fact that the two lowest values (-6%) and (+13%) affected the mean and inflated the standard deviation. More investigation is required. The student with the lowest percentage of increase (13%) and the student that had a decrease in critical reflection both had mother tongues other than English or French. As the sample was very small, no significance can be given to this, however, it is a noteworthy observation.

1.2 Surveys

Two surveys regarding self-efficacy were distributed, one at the beginning of the Fall 2011 semester and the second at the beginning of the Winter 2012 semester. The second survey asked four questions related to journaling that did not appear on the first survey (see questions 13 to 16 in Appendix H—Winter 2012 Success Survey).

Eight of the 11 students agreed or strongly agreed that reflection-in-action journaling helped them think about what they were doing right and wrong in their projects and how to do it better. Nine out of 11 students agreed or strongly agreed that reflection-on-action journaling allowed them to think about what they had learned and how they had learned it. Seven of the 11 students indicated that they would not have reflected during or after the project if they were not required to do so. This is significant as 64% of the students would not have thought about what they had learned, how they had learned, and how to improve in the future had they not been required to journal.

Lastly, 6 students were neutral and 3 students disagreed with the following statement: *Reflection on action (after the project was over) was less valuable than reflection in action.* This finding does not support the conclusive results of the comparison of journal instruments, where an increase of 35% in critical reflection was noted in the reflection-on-action journals. This is perplexing, not to mention disappointing. However, upon reflection this result could be attributed to a number of factors: a) the students did not equate “valuable” with increase in level of reflection, which was being measured in the journal entries, 2) the fact that this was the only question expressed in the negative, so the effect of a response set could have influenced their response, and 3) there may have been a confusion between reflection in action and reflection on action.

1.3. Interviews with Four Volunteer Students

Volunteers were solicited from the same sample in the Winter of 2012 after the second survey was completed. (See Appendix E—Interview Email Request and Interview Guide). The objective was to gain an understanding of student perceptions of the journal writing assignments in general. More specifically, the goal was to record their perceptions about the value of one type of journal writing over another (reflection in action versus reflection on action), and also to learn whether self-efficacy was stronger in the winter semester than it was in the fall semester. Four students were interviewed and semi-structured probative questions based on the work of Langer (2002) were asked. Their responses are summarized under the question headings that follow.

1. What was your initial reaction to being required to use a learning journal?

Students' initial reactions were somewhat negative. Two students thought it would be "more work to do". One student thought it was more like record keeping, "writing down what you did," and another student was unsure of how to write a journal and "did not really want to do them."

2. Were there any downsides or disadvantages to writing learning journals? If so, what were they?

Students generally felt that there were not any downsides to journal writing. Two students did mention that more time was needed, but that it was not a big disadvantage.

3. Were there any benefits of doing learning journals, If so, what were they?

All four students indicated that journal writing was beneficial. One student noted that "it was really beneficial. I was able to think back about what I learned and how I could use it in the future." Another student noted that "it helps you look back on what you did so you can think about how you enjoyed doing the project and what problems you had ...I'm thinking about what I did wrong and ways I can improve on that the next time."

4. *Did writing the learning journals change your learning process in any way?* All students indicated that it changed their learning process insofar as they thought much more about what they were doing while they were doing it. They also thought about what they had learned from previous projects that they could apply to new projects. This is *critical reflection*. One student wrote that it made her thinking “more structured.” Another student noted that “I am going to change this and really try to work harder on that one fault.”

5. *Did you use the learning journal as a way of communicating with me (researcher)?* All students used the learning journals as a way of communicating with the instructor because the instructor either inserted comments into the journals when returned or discussed problems encountered with students personally after journaling. One student wrote that “there were a few times I had problems and I would explain them and you would talk to me after.” Another student commented, “You saw that I was learning when you wrote back and you gave me feedback through the email.”

6. *Did your writing journals help you reflect more during the project or after the project or not at all? Please elaborate.* Three of the four participants believed the reflection-on-action journals helped them reflect more deeply than the reflection-in-action journals. Student A indicated, “It was more after because during the project I am so into it that I am not really thinking. It is not that I am not thinking but am not reflecting as much. After, I look at it and OK I realize what I did.” Student B stated, “The one after...I think it’s just because you reflect on the entire thing instead of just like midway...I found after was better but not better for the project because, of course, it’s too late ... but I learned more after”. Student D agreed and noted, “I liked looking back on the project a week later. I liked that you had to take a break from the project and look back on it and kind of remember.” Student C told the interviewer that she learned more while reflecting during the project. She indicated that she was thinking about what she was doing while she was doing it. She was learning while she was doing.

In summary, students had some initial concerns about the value of journaling, but these concerns were later dismissed as students learned that journaling was a valuable tool that helped them reflect and learn. All participants indicated that journaling changed their learning processes as they thought much more about what they were doing while they were doing it. They were taking the learning they had acquired and thinking about how they would apply it to new projects; this is called *critical reflection*.

Based on data gathered and analyzed from the 66 journals and four face-to-face interviews, the hypothesis that *reflection-on-action journaling promoted a deeper approach to learning than reflection-in-action journaling* was supported.

2. RESEARCH QUESTION 2

The second question the researcher sought to answer was whether *the level of self-efficacy in graphic design improved as students were encouraged to think reflectively*.

2.1 Journals

Students were asked to journal half way through three projects (reflection in action), and again a week after the three projects were submitted for grading (reflection on action). An emerging approach to content analysis was taken regarding self-efficacy using direct quotes from student journals. In the reflection-in-action journals, students were asked to answer the question of whether or not they liked the piece they had completed, why or why not, and also whether they thought the piece would be portfolio-worthy, and why or why not. In the reflection-on-action journals, students were asked whether they were proud of their work, and were asked to explain why or why not. Levels of self-efficacy across reflection-in-action journals and reflection-on-action journals and also levels of self-efficacy between the two types of journals were compared. Individual students were also tracked regarding their level of self-efficacy in both types of journals.

2.1.1 Levels of Self-Efficacy Expressed in Journals

Tables 11 and 12 below illustrate the levels of self-efficacy as expressed in the reflection-in-action and the reflection-on-action journal entries.

2.1.1.1 Reflection-in-Action Journals

What emerged from these journals was that there was very little, if any, growth in self-efficacy as students gained experience in the field. Students generally appeared to have strong self-efficacy throughout the course. Student A wrote in the second reflection-in-action journal, “So far I really like what I have; I am positive that once my final version is perfect it would be wonderful to add to my portfolio.” Student D wrote in the second reflection-in-action journal, “I like what I have done so far. Hopefully the finished project will be as satisfying as I suspect it will be, and I would be very proud to present it to future employers.” Similar comments ran through all the reflection-in-action journals.

Table 11 – Level of Self-Efficacy in Reflection-in-Action Journals As Revealed in Utterances

	A	B	C	D	E	F	G	H	I	J	K	TOTAL
Weak	0	0	0	0	0	0	0	0	0	0	1	1
Moderate	0	0	0	0	0	1	0	0	0	2	0	2
Strong	3	3	3	3	3	2	3	3	3	1	2	30

Table 11 above illustrates the levels of self-efficacy in the three reflection-in-action journals. Of the 33 reflection-in-action journals written, there was one instance of weak self-efficacy as evidenced by Student K’s reflection-in-action 2 journal entry: “I don’t think that, for this project, it will be portfolio-worthy. I’ve been having a hard time imagining how the design will look on the back, sides and the spine, and how to compliment it with the cover.” There were three entries of moderate beliefs about a particular project as evidenced by Student C in reflection-in-action 3: “So far,

I do not think that my work is portfolio-worthy, as it is not coming out the way that I have plan [*sic*]. However, I believe that once I have decided on a design to bring to comp, all I need is to work harder on it to make it look nice.”

2.1.1.2 Reflection-on-Action Journals

What emerged from these 33 journals was that there was no significant growth in self-efficacy as students gained experience in the field. Students generally appeared to have strong self-efficacy throughout the course.

Table 12 – Level of Self-Efficacy in Reflection-on-Action Journals

	A	B	C	D	E	F	G	H	I	J	K	TOTAL
Weak	0	1	0	0	0	0	0	0	0	0	1	1
Moderate	0	0	0	0	0		1	0	1		0	2
Strong	3	2	3	3	3	2	2	3	2	3	2	30

Of the 33 comments coded for self-efficacy, 30 of the responses were coded for strong self-efficacy as illustrated by Student K’s writing in the reflection-on-action journal 3: “I am proud of my work. It is the first time that I worked on an assignment and felt that I did the best I could.” All of the 30 responses were very similar to that of Student K above. Table 12 above illustrates the level of self-efficacy in reflection-on-action journals.

2.1.1.3 Reflection-in-Action vs. Reflection-on-Action—Levels of Self-Efficacy

There was no difference in the level of self-efficacy between reflection-in-action and reflection-on-action journals. Each set of journals had exactly the same number of coded entries for each type of self-efficacy (weak, moderate, strong), although not from the same respondents or on the same projects. The hypothesis that student self-efficacy would improve as students were encouraged to reflect was, therefore, not supported using the journal instrument.

2.2. Interviews with Four Volunteer Students

Volunteers were solicited from the same sample in the Winter 2012 semester, after the second survey was completed. (See Appendix E—Interview Email Request and Interview Guide). The objective was to gain an understanding of student perceptions of the journal writing assignments, in general and, more specifically, their perceptions about the value of one type of journal over the other (RIA versus ROA). An additional objective was to learn whether self-efficacy was stronger in the winter semester than it was in the fall.

To that end, the participants were asked the following question about self-efficacy: *How confident are you in your success in the next Page Layout course – the one you are doing now? Are you more confident than you were when you started last semester?*

All four students indicated that they felt more confident than they had at the beginning of last semester because they had gained experience as designers. Student A indicated that she was more confident because “I have learned more and gained more experience, and I learned about myself. I learned about my style ...it helped me realize things about how I work.” Student D noted, “I think I am more confident about it because I think I have gotten better as a designer. I wasn’t very sure how to work the programs and stuff and so it is just much easier now so you can kinda [*sic*] be more free about what designs you’re doing and stuff.” The hypothesis was supported in the interviews.

2.3 Surveys

Two self-efficacy surveys were distributed, one at the beginning of the Fall 2011 semester and the second at the beginning of the Winter 2012 semester. The same 12 questions were asked in each survey (See Appendix G and H). There appeared to be very little difference in the level of self-efficacy in the first and second surveys.

Table 13 – Self-Efficacy Survey Changes from Fall to Winter

Student	Question Number									Increase/ Decrease
	4	5	6	7	8	9	10	11	12	
A	NC	NC	+	-	-	-	NC	NC	NC	-2
B	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
C	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
D	NC	NC	+	NC	NC	NC	NC	NC	NC	+1
E	-	NC	+	-	NC	-	NC	NC	+	-1
F	NC	NC	NC	+	NC	NC	NC	-	NC	-1
G	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
H	+	NC	NC	-	NC	+	+	+	+	+4
I	NC	NC	-	+	-	+	NC	+	+	+2
J	NC	NC	NC	NC	NC	NC	-	NC	+	NC
K	NC	NC	NC	-	NC	NC	+	NC	NC	NC
Total for each question	NC	NC	1+	-2	-2	NC	+1	+1	+4	+3

NC = no change

Out of a total of 99 responses, there were seven instances of an increase in self-efficacy and four instances of a decrease in self-efficacy. Five participants showed no change in self-efficacy; two students showed a slight increase (Student D increased by one response and Student I increased by two responses). Student H showed an increase in self-efficacy in four out of the nine questions (44%). Three respondents showed a slight decrease (Student A decreased by two and Students E and F decreased their responses by one. See Table 13 above for a breakdown for each student and each question, and the response difference for each question. Table 13 begins with the fourth question, as the first three questions were demographic in nature.

Four out of 11 (36%) students' self-efficacy improved on Question No. 12, *I am confident that I will be able to handle the new software challenges in this course*. Students A, B, C, D were also the student volunteers for the interviews. The responses vary slightly from those in the interview where all students indicated they felt more confident at the beginning of the second semester than they did in the first. The survey results are not conclusive.

Based on the journals, surveys, and interviews, there is not enough evidence at this time to support the hypothesis that self-efficacy improves when students are encouraged to think reflectively. It could be hypothesized, however, that one's self-efficacy does not change in such a short period of time.

CHAPTER SIX: DISCUSSION AND CONCLUSION

1. SUMMARY OF FINDINGS IN RELATION TO PREVIOUS STUDIES

This case study explored the effects of two different types of learning strategies on deep learning: 1) journal writing in the midst of a project (reflection in action—RIA) and; 2) journal writing a week after project completion (reflection on action—ROA). The hypothesis was that reflection on action would promote deeper learning than reflection in action. The sample consisted of 11 third-semester CEGEP students enrolled in an introductory Page Layout and Design course in the NewMedia Program at a small Anglophone college in West Quebec. In addition, self-efficacy was measured before and after the journaling with the hypothesis that self-efficacy would improve after journaling.

The use of *three* different instruments (journals, interviews, and surveys) served to enrich the research, as did the subsequent qualitative and quantitative methods used for data analysis. A priori content analysis was used for the journal and interview instruments comparing reflection in action and reflection on action; summaries emerging from the data in the journals and interviews regarding levels of self-efficacy were used; and statistical analysis was used for the survey instrument comparing reflection in action and reflection on action and levels of self-efficacy.

With the exception of Ellmers et al (2009), it should be noted that there is no published research in the field of graphic design, or any other field, comparing reflection-in-action and reflection-on-action learning strategies for the purpose of promoting deep learning. This researcher, therefore, extrapolated from other fields where journaling was used as a means to critical reflection (the highest form of reflection (Kember et al. 1999)).

Despite the fact that Ellmers et al's (2009) findings have not been published yet, the design of this research study was modeled after their work whose field is graphic design at the university level, similar to that of this researcher. Ellmers et al. (2009) implemented qualitative and quantitative methods, using a survey, semi-structured interviews, three reflection-in-action reports, and a reflection-on-action assessment completed after submission of the final project. However, given the fact that a data analysis has not been published to date, a comparison of findings cannot be made.

Coded journal entries and interviews firmly supported the hypothesis that reflection-on-action journaling promotes deep learning. These results were similar to those of Terrion and Phillion (2008), where it was found that the students, who were peer mentors, learned deeply when reflecting on action. Journal writing seemed to be a vital element of mentor training; it was a forum where mentors could reflect on their work.

Moreover, this case study's findings paralleled that of Terrion and Phillion (2008) regarding the notion that journals function as a medium for dialogue between student and teacher. This was evidenced in this researcher's interview instrument where all students indicated that they used the learning journals as a way of communicating with the instructor because the instructor either inserted comments into the journals when returned or discussed problems encountered with students personally after journaling.

The findings in this study also supported the work of Roberts and Yoell (2009) where, in most cases, students saw the benefits of producing learning journals. The students indicated that their sense of pride and achievement often came as a surprise, something that might not have taken place had they not journaled. Sixty-four percent of this case study's sample would not have thought about what they had learned, how they had learned, and how to improve in the future had they not been required to journal.

As noted earlier, due to lack of published research in the field of graphic design or any field comparing the two learning strategies (reflection in action and reflection on action), it is difficult to evaluate the findings of this case study in comparison to previous studies in an effective manner.

2. LIMITATIONS AND STRENGTHS OF THE CASE STUDY

An obvious limitation of this case study is the lack of any published research in the field of graphic design, at any level, comparing reflection-in-action and reflection-on-action learning strategies for the purpose of promoting deep learning. It was, therefore, impossible to use survey instrument questions regarding reflection in action and reflection on action that had been previously been found reliable. Question No. 14 relating to the value of reflection in action compared to that of reflection on action was perhaps confusing for the students as they may not have equated the term *valuable* with an *increase in level of reflection*. In addition, this was the only question expressed in the negative, and this may have influenced the student responses. Had the survey been piloted, this confusion would have been discovered, and the question would have been reworded.

As is the case for most case studies, the size of the sample was small, as there were only 11 participants in this convenience sample. It was restricted to students in one course in one program in one CEGEP. The sample, therefore, lacked randomization. It can be argued, however, that using the same students for all three instruments made the research more meaningful and was a major strength of the case study. It is hoped that the findings in this case study can be generalized to other graphic design programs, if not other career programs.

Another limitation of the case study was that this researcher had not previously used self-efficacy surveys and, therefore, had no previous experience with assessing college students' levels of self-efficacy, in general, and levels of self-efficacy in graphic design students, in particular. Because of this lack of experience, the researcher was unable to compare these participants' levels of self-efficacy to

those in the past to determine whether this particular group had higher self-efficacy at the beginning of the course than was the norm.

3. FUTURE CONSIDERATIONS

A longitudinal case study using the reflection-on-action journaling instrument beginning in the third semester (in the first print course) and ending in the sixth semester (in the last print course) that examines for increases in critical reflection from semester to semester might illustrate how students evolve throughout a program through reflection on action. It might also be interesting to measure self-efficacy at the beginning and end of the course for three or four years to learn if levels of self-efficacy change from group to group and why this may occur. Another longitudinal study measuring self-efficacy at the beginning and end of each semester for the six semesters of the program might illustrate how student self-efficacy changes from semester to semester as they gain experience in the program.

4. CONCLUDING REMARKS

The purpose of this case study was to compare two different strategies (reflection in action and reflection on action) for the purpose of promoting a deep approach to learning. It was this researcher's hypothesis *that reflection on action journaling would promote a deeper approach to learning than reflection in action journaling*. Through reflection on action journaling, students would know *that* they were learning, *what* they were learning, *how* they were learning and how they might *transfer* what they were learning to future design projects.

This case study used a mixed methods research approach drawing on the work of Ellmers et al. (2009), Roberts and Yoell (2009), Terrion and Phillion (2008), Boud (2001), and Kember, et al. (1999). The findings established in this case study make a practical contribution to the literature concerning the promotion of deep learning in the field of graphic design, as this researcher's hypothesis was supported that reflection-on-action journaling promoted deeper learning than reflection-in-action journaling. When examining the increases in critical reflection from reflection-

in-action to the reflection-on-action journals, it was found that all students but one showed an increase in *critical reflection* in reflection-on-action journals ranging from 13% to 57% with the average increase being 29%. It is therefore recommended that production-oriented program instructors consider integrating reflection-on-action journaling into their courses where projects are given.

Critical reflection on practice requires commitment and time. It is recommended that this method of learning through journaling start at the beginning of the students' education in the design field as it may improve their academic performance. It also may improve their professional design skills which may, in turn, improve their job prospects, and this is the purpose of career programs.

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APPENDIX A—VERBAL EXPLANATION TO PARTICIPANTS

APPENDIX A—VERBAL EXPLANATION TO PARTICIPANTS

I am conducting a research project for my Masters in Education. Its purpose is to learn more about how to promote deep learning in my courses so that you know that you are learning and what you are learning and that you will transfer this knowledge to new courses. Of course, whatever I learn I will share with the department and with the college.

In order to do this, I am asking you to journal as part of your course, and you will be graded on these assignments. With your permission, I would like to take the content of these journals and analyze them for my research. It is my belief that these journals help you learn more deeply.

I would also like to survey you at the beginning of this course and at the beginning of the next course to see if you have more confidence in your ability to be successful. I wish also to learn your thoughts about journaling. These surveys will take approximately ten minutes each to complete.

In addition, next semester I will email everyone in class asking for a few volunteers to interview about your experiences journaling. I will need to record these interviews. This should take no more than 15 minutes. As a thank you, I will give you a lunch voucher for our cafeteria.

Your participation in the surveys and the interview process are absolutely voluntary as is your permission to allow me to analyze your journals. The content of your journals and your responses in interviews and on surveys will remain strictly confidential; no names will ever be used.

I have asked a member of Academic Services to come to the classroom asking for you to complete a consent form. These will be kept in Academic Services until after the grades have been submitted. Refusal to participate will in no way impact your grade or our relationship.

**APPENDIX B—INFORMED CONSENT FORMS FOR
JOURNALS AND SURVEYS**

APPENDIX B—INFORMED CONSENT FORMS FOR JOURNALS AND SURVEYS

Student Consent Form

for

Joanne Cypihot Mullaly

*Reflective Journal Writing in a Second-Year Page Layout and Design Course in The
NewMedia and Publication Design Program at Heritage College*

This project will case study the effects of journal writing on student learning. You will be required to complete 6 journal entries in this course. I am asking your permission to use the data collected from your 6 journal entries and two surveys that will be given – one at the beginning of this course and the other at the beginning of next semester. The aim of this case study is to find out how we can help improve the learning process. Please read the explanation below and if you agree to participate please sign the consent form below. Results of this research case study will be made available upon request to any interested participant.

Consent to Participate in Research

Journals

I, _____ agree to take part in a case study about students' self-reflection in journal writing. I understand that participation in the case study will involve the use of data collected from my journals. I understand that I am required to complete journals for my Page Layout and Design course, and I am granting permission for the use of these journals for data analysis in your research. My granting of permission

to use these journals for data analysis is completely voluntary, and I am completely free to decide whether or not to participate in this research project. If I decide not to participate in the case study, my academic performance will not be jeopardized. I am free to withdraw from the case study at any time without penalty.

Surveys

The surveys are not part of the Page Layout and Design course and are completely voluntary. I have been told that the completion of the two surveys should take about 10 minutes each and that the surveys will be completed during class time.

I have been informed that my participation in these surveys is voluntary, and I am completely free to decide whether or not to participate in this research project. If I decide not to participate in the case study, my academic performance will not be jeopardized. I am free to withdraw from the case study at any time without penalty. I understand my name will appear on the surveys, however, the data from the survey will not be analyzed until after grades are submitted.

I have been told that all information gathered from this the surveys and the journals will remain confidential. I will not be identified in any report or presentation that may arise from the case study. It has also been explained to me that the data gathered may be used for other research studies in the future. If this is done, the same practices to ensure confidentiality will be observed as within this case study.

I have read the contents of this consent form and the above research procedures have been explained to me. I have been encouraged to ask questions, and any questions have been answered to my satisfaction. I give my consent to participate in this case study. I have been given a copy of this form for my records and future reference.

Journal Permission

x _____	_____	_____
(Signature of Participant)	(Date)	(Printed Name)

Survey Permission

x _____	_____	_____
(Signature of Participant)	(Date)	(Printed Name)

Statement of Parent/Guardian Consent (for participants under the age of 18 years

<p>I certify that I am the legal parent or guardian for (Names) _____</p> <p>_____</p> <p>Born _____ (Date of Birth).</p> <p>I certify that I have read the above information, understand that the risks, benefits, responsibilities and conditions of participation as outlined in this document and freely consent to</p> <p>_____ 's participation in the proposed case study on journaling.</p>

Journal Permission

x _____	_____	_____
(Signature of Parent/Guardian)	(Date)	(Printed Name)

Survey Permission

x _____		
(Signature of Parent/Guardian)	(Date)	(Printed Name)

Thank you for your time and cooperation.

**APPENDIX C—REFLECTION IN ACTION
JOURNAL INSTRUCTIONS**

Preamble: Students will be required to reflect in action on three separate projects.
Instructions will be basically the same for all projects.

APPENDIX C—REFLECTION IN ACTION JOURNAL INSTRUCTIONS

This journal is intended to be a personal reflection about the process or journey you are taking to create your PSA poster. The length should be approximately 400 words.

Instructions

- You should discuss how you decided on your particular topic. Was your first choice the one you are currently working on?
- How well do your thumbnail sketches reflect what you are currently doing?
Should you have done more thumbnails sketches or more detailed sketches?
Would they have put you in a better position now?
- Are you struggling with either the design process or the software? If so, what are you doing to help yourself?
- Are you enjoying the process; why or why not?
- Do you like what you have done so far; why or why not?
- Do you think this piece will be portfolio worthy; why or why not?

*Note: please do not write about what you are doing; e.g. **In this assignment I started by putting in the text and then the logo and then my picture.** Write about what you are thinking, what you feeling and what you learning during the creation of this poster.*

Please email this journal as a Word attachment; it is due

**APPENDIX D—REFLECTION ON ACTION JOURNAL
INSTRUCTIONS**

Preamble: Students will be required to reflect on action on three separate projects.
Instructions will be basically the same for all projects.

APPENDIX D—REFLECTION ON ACTION JOURNAL INSTRUCTIONS

Your journal is intended to be a personal reflection about the process or journey you took in creating this PSA poster. The length should be approximately 400 words.

Instructions

- You should discuss why you chose the particular topic you did.
- You should discuss how you arrived at your design (how did you come up with the idea); any new knowledge or skill you acquired about the software or hardware (printers), and any new knowledge acquired about design.
- Did you learn anything new about yourself as a designer or how you work best or learn best?
- Did you enjoy completing this piece; why or why not?
- Are you proud of your work; why or why not?
- Would you do anything differently the next time?
- The length should be approximately 400 words.

*Note: please do not write about what you did; e.g. **In this assignment I started by putting in the text and then the logo and then my picture.** Write about what you thought, what you felt, and what you learned after reflecting on the process of producing a PSA poster.*

Please email this journal as a Word attachment; it is due

**APPENDIX E—INTERVIEW EMAIL REQUEST AND
INTERVIEW GUIDE**

APPENDIX E—INTERVIEW EMAIL REQUEST AND INTERVIEW GUIDE

Email

As mentioned last Thursday, I would like to conduct interviews as the final piece for my research project, and I am asking for volunteers. This will take about 15 minutes of your time, and please do not feel obligated. The purpose is to investigate the effects of journal writing on learning. I am attaching a copy of the questions so you know what to expect. I would like to begin interviews the first week of February, and I am looking for about five volunteers. Let me know whether you can fit this into your busy schedules.

Please note that anything said in these interviews is absolutely confidential. In addition, I would be pleased to give you a copy of the transcript of the interview or a copy of the audiotape and share the results of my research should you wish it.

Questions you will be asked:

1. What was your initial reaction to being required to use a learning journal?
2. Were there any downsides or disadvantages to writing learning journals? If so, what were they
3. Were there any benefits of doing learning journals? If so, what were they
4. Did writing the learning journals change your learning process in any way?
5. Did you use the learning journal as a way of communicating with your instructor?
6. Did your writing journals help you reflect more during the project or after the project or not at all? Please elaborate.
7. How confident are you in your success in the next Page Layout course? Why?

*Adapted from Langer, A. M. (2002). Reflecting on practice: Using learning journals in higher and continuing education. *Teaching in Higher Education*, 7(3), 337-351.

APPENDIX F—INFORMED CONSENT FORMS FOR INTERVIEWS

APPENDIX F—INFORMED CONSENT FORMS FOR INTERVIEWS

Student Consent Form (Interviews)

for

Joanne Cypihot Mullaly

*Reflective Journal Writing in a Second-Year Page Layout and Design Course in The
NewMedia and Publication Design Program at Heritage College*

This project will case study the effects of journal writing on student learning. I am asking your permission to audio record an interview of approximately 15 minutes regarding your opinion about journal writing using guided questions. The aim of this case study is to find out how we can help improve the learning process. Please read below and if you agree to participate, please sign the consent form below. Results of this research case study will be made available upon request to any interested participant.

Consent to Participate in Research

I, _____ agree to take part in a case study about students' self-reflection in journal writing. I understand that participation in the case study will involve being interviewed and that interview will be recorded.

I have been told that the completion of the interview should take about 15 minutes.

I have been informed that my participation in the interview is voluntary, and I am completely free to decide whether or not to participate in this research project. If I decide not to participate in the case study, my academic performance will not be jeopardized.

I understand my name will not appear in any interview transcripts. All of my specific answers from the transcripts will remain strictly confidential. I have been told that all appropriate measures to ensure the confidentiality of any information about me will remain confidential. I will not be identified in any report or presentation that may arise from the case study. It has also been explained to me that the data gathered may be used for other research studies in the future. If this is done, the same practices to ensure confidentiality will be observed as within this case study. I have read the contents of this consent form and the above research procedures have been explained to me. I have been encouraged to ask questions, and any questions have been answered to my satisfaction. I give my consent to participate in this case study. I have been given a copy of this form for my records and future reference.

x _____		
Signature of Participant)	(Date)	(Printed Name)
Statement of Parent/Guardian Consent (for participants under the age of 18 years		
I certify that I am the legal parent or guardian for (Names) _____		

Born _____ (Date of Birth).		
I certify that I have read the above information, understand that the risks, benefits, responsibilities and conditions of participation as outlined in this document and freely consent to		
_____ 's participation in the proposed case study on		
journaling.		
x _____	_____	_____
(Signature of Parent/Guardian)	(Date)	(Printed Name)

Thank you for your time and cooperation.

APPENDIX G—FALL 2011 SUCCESS SURVEY

APPENDIX G—FALL 2011 SUCCESS SURVEY

This survey is meant to let me know how confident you are in your abilities to be successful in this new print design course and in the program in general.

1. Gender
 - Male
 - Female

2. Age
 - 16 – 18

 - 19 – 22
 - 23 – 30
 - Over 30

3. Mother Tongue
 - English
 - French
 - Other

Please circle the answer that best fits the statements below.

4. I will be able to achieve most of the goals that I have set for myself in this course.

Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
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5. It is usually easy for me to stick to and accomplish my goals in school.

Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
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6. If I am having academic issue, I can usually think of a solution.

Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
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7. I can remain calm when facing difficulties because I can rely on my coping abilities.
- Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree
8. I can solve most academic problems if I invest the necessary effort.
- Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree
9. I am confident that I can deal efficiently with whatever comes my way in this course.
- Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree
10. When things get tough, I will still be able to do a good job in this course.
- Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree
11. I am confident that my design skills are effective enough to be successful in this course.
- Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree
12. I am confident that I will be able to handle the new software challenges in this course.
- Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

Thank you for your participation.

*Adapted from Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs (pp. 35-37). Windsor, UK: NFER-NELSON (<http://userpage.fu-berlin.de/~health/engscal.htm>).

APPENDIX H—WINTER 2012 SUCCESS SURVEY

APPENDIX H—WINTER 2012 SUCCESS SURVEY

This survey is meant to let me know how confident you are in your abilities to be successful in this advanced print design course and in the program in general and also how you feel about the journaling process you were required to do last semester.

1. Gender
 - Male
 - Female

2. Age
 - 16 – 18

 - 19 – 22
 - 23 – 30
 - Over 30

3. Mother Tongue
 - English
 - French
 - Other

Please circle the answer that best fits the statements below.

4. I will be able to achieve most of the goals that I have set for myself in this course.
Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

5. It is usually easy for me to stick to and accomplish my goals in school.
Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

6. If I am having academic issues, I can usually think of a solution. .
Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

7. I can remain calm when facing difficulties because I can rely on my coping abilities.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

8. I can solve most academic problems if I invest the necessary effort.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

9. I am confident that I can deal efficiently with whatever comes my way in this course.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

10. When things get tough, I will be able to do a good job in this course.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

11. I am confident that my design skills are effective enough to be successful in this course.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

12. I am confident that I will be able to handle the new software challenges in this course.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

13. Reflection in action (during a project) helped me think about what I was doing right and wrong in the project and how to do it better.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

14. Reflection on action (after the project was over) was less valuable than reflection in action.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

15. Reflection on action allowed me to think about what I learned and how I learned it.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

16. I would have reflected in (during a project) and on action (after a project) even if I was not required to journal.

Strongly Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

Thank you for your participation.

*Adapted from Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs (pp. 35-37). Windsor, UK: NFER-NELSON (<http://userpage.fu-berlin.de/~health/engscal.htm>).